

Title: **EP0584457B1: Method and device for a regulated engagement and disengagement of a clutch in the transmission of a vehicle** [\[German\]](#) [\[French\]](#)

Derwent Clutch control system for vehicle with automatic transmission -

Title: measures engine displacement with respect to coachwork for various drive conditions to minimise vibration or shock to interior [\[Derwent Record\]](#)

Country: EP European Patent Office (EPO)

Kind: B1 Patent ¹ (See also: [EP0584457A1](#))

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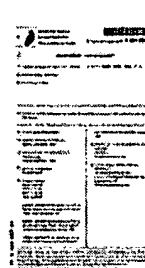
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Abstract: [\[From equivalent EP0584457A1\]](#) The invention relates to a method and a device for the controlled engagement and disengagement of the clutch in the transmission of a drive device of a motor vehicle comprising an engine (1) and an electrohydraulically actuatable automatic transmission (2). When such a motor vehicle is brought to a standstill with gear engaged and with the drive wheels braked, so-called standing vibration of the drive assembly occurs, which is perceived by the driver of such a vehicle as disadvantageous. Furthermore, when a gear is engaged from a standstill or when decelerating to the point of standstill so-called engaging or disengaging shocks occur, which also reduce the ride comfort. By means of the method and device according to the invention, the standing vibration of the vehicle and the engaging and disengaging shock of the drive device are greatly reduced in that in these driving situations the control pressure in the clutch (7) of the transmission (2) is adjusted by a transmission control device (6) in such a way that the clutch begins to slip.



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- Claims: 1. Method for controlling the engaging and disengaging of the drive coupling (7) in the transmission of a drive unit of a motor vehicle consisting of a motor (1) and an electro-hydraulic automatic transmission (2), characterised in that as a variable representing the stress between the drive unit (1,2) and the bodywork (10), the displacement path between the drive unit and the bodywork, the output torque of the transmission or information regarding the supporting force in the support bearings (8,9) of the drive unit, is measured and directed to a transmission control device (6), wherein in the case of a stationary motor vehicle in which a gear is engaged and the brakes have been applied to the drive wheels,
or in the case of a stationary motor vehicle having a disengaged gear,
or when retarding the motor vehicle towards becoming stationary with an engaged gear and when not achieving a predetermined velocity and load threshold,
the control pressure in the drive coupling (7) of the transmission is adjusted as a function of the determined stress value by the transmission control device (6) in such a manner that the drive coupling (7) begins to slip.
2. Method according to claim 1, characterised in that the particular transmission coupling which switches the gear just engaged is controlled as the drive coupling.
3. Method according to claims 1 to 2, characterised in that the slip moment of the drive coupling can be freely selected in advance and is stored in the transmission control device (6).
4. Method according to the claims 1 to 3, characterised in that the slip moment is pre-selected in such a manner that by measuring the displacement path (16) of the output torque of the transmission (2) or the supporting force it is in particular possible to measure a small stress between the drive unit (1,2) and the bodywork (10).
5. Method according to claim 4, characterised in that the value representing the stress is determined by the transmission control device (6) in fixed time and/or driving output intervals, wherein the displacement path (16) of the drive device (1,2) is established when the drive coupling is fully open and fully closed.
6. Method according to any one or several of claims 1 to 5, characterised in that when engaging a gear from idling and when the motor vehicle is simultaneously at a standstill the drive coupling (7) which was previously open is now closed to the extent that the previously established slip moment of the drive coupling is recognised by the transmission control device at the commencement of the deflection of the drive unit.
7. Method according to any one or several of claims 1 to 6,


characterised in that in the case of an engaged gear and after releasing the brake the pressure of the drive coupling is raised slowly over a time ramp which inclines in dependence upon the driving output desired by the driver and signalled by way of the accelerator pedal or by way of the restrictor flap angle.

8. Method according to any one or several of claims 1 to 8, characterised in that for the purpose of reducing the control pressure of the drive coupling, the main pressure level of the electro-hydraulic control device (20) of the transmission (2) is reduced from the main pressure level to the slip pressure by virtue of engaging and disengaging in a controlled manner the control valve of the drive coupling (7).

9. Device for the purpose of carrying out the method according to claims 1 to 8, including a drive device consisting of a drive motor (1) and an automatic transmission (2), which drive unit is connected by way of an elastic support bearing (8,9) to the bodywork (10) of the motor vehicle, a differential transmission (3) connected downstream of the drive unit (1,2), from which differential transmission axle shafts (11,12) branch off, which axle shafts are connected by way of the wheel brakes (18,19) to preferably two drive wheels (4,5), and a transmission control unit (6), which is connected to an electro-hydraulic control device (20) for the purpose of actuating the adjusting members of the transmission (2), characterised in that the transmission control device (6) is connected by way of the control and/or data line to a displacement sensor (13) for the purpose of measuring the displacement of the drive unit (1,2) with respect to the bodywork (10) or to a torque sensor (17) at the output shaft of the transmission (2) or to a sensor for the purpose of measuring the support bearing force in or at the support bearings (8,9) as well as to a restrictor flap angle sensor (15) at the motor restrictor flap, to a braking light switch (14) and to a measurement indicator for the motor vehicle velocity (V).

10. Device according to claim 9, characterised in that in place of the torque sensor (17) a rotational speed sensor is disposed at the sun wheel of the transmission (2) which is in the form of a planetary gear change box.

[German] [French]

 **Description** [From equivalent EP0584457A1]






Expand description


Die Erfindung betrifft ein Verfahren und eine Vorrichtung zur geregelten Zu- und Abkopplung der Fahrkupplung im Getriebe einer aus einem Antriebsmotor und einem elektrohydraulisch betätigbaren Automatikgetriebe bestehenden Antriebseinrichtung eines Kraftfahrzeuges, insbesondere ein Verfahren und eine Vorrichtung zur Verminderung des Standschüttelns bei eingelegtem Gang und gebremsten Antriebsrädern, sowie zur Reduzierung des Anschalt- bzw. des Ausschaltstoßes durch die Antriebseinrichtung.

± **BEZUGSZEICHENLISTE**

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	US6626777	2003-09-30	Gierling; Armin	ZF Batavia L.L.C.	Device for controlling an automatic gearbox
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	DE19851159A1	2000-05-11	Gierling, Armin	ZF-Batavia, L.L.C.	Einrichtung zum Steuern eines Automatikgetriebes
	DE19844374A1	2000-03-30	Gierling, Armin	ZF Friedrichshafen AG	Einrichtung zum Steuern eines Automatikgetriebes

 Other Abstract
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